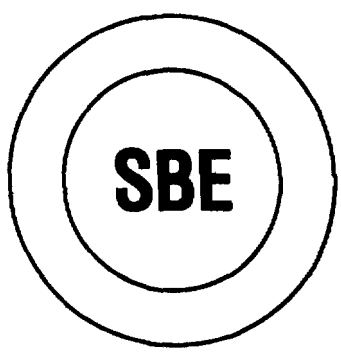
ORIGINAL

Society of Broadcast Engineers, Inc.

Petition for Rule Making Concerning Improvements to Part 11 of the FCC Rules (EAS)



August 9, 1997

SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 11 of the FCC Rules	)	RM No. _____
Governing the Emergency Alert System	)	
	)	
	)	

To: The Commission

Petition For Rule Making

The Society of Broadcast Engineers, Incorporated (SBE), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members in the United States, hereby respectfully submits this Petition for Rule Making to accomplish more uniform and reliable operation of the Emergency Alert System with added capability.

I. Reason for Petition

1. On December 9, 1994, the Federal Communications Commission adopted a major revision of the Emergency Broadcast System ("EBS") Rules, by creating a new Part 11 of the FCC Rules governing the Emergency Alert System ("EAS"). The EAS was implemented by broadcasters on January 1, 1997. This first year of EAS has been dubbed the "shakedown" year, a year in which the system's operation is being observed for inconsistencies or deficiencies in attaining its intended goals.

2. The SBE recognizes the value of a smooth operating EAS system to the emergency broadcasting commitment of broadcast licensees, many of whom employ SBE members as their technical staff or advisors. Early in 1995 the SBE formed an EAS Committee at the National level to assist its members in bringing about an implementation of the new EAS in a way that would instill in the industry a high level of confidence in it. Once that level of confidence is in place, the SBE feels that the EAS will become a vital tool toward dissemination of emergency and disaster information, the result of which will be saved lives. The SBE feels that only by creating a system that is predictable when needed will this high level of confidence be realized.

3. Unfortunately, some startup problems* have already lost EAS critical support that will be hard to regain in some quarters. This is unfortunate since a growing list of EAS successes have gained the system positive press and support in areas that have been hit by emergencies since the system went on line. Since January 1st the SBE membership has been forwarding to its EAS Committee instances of questionable operation of the EAS in various parts of the country. The Committee has taken this information and has attempted to identify reasons for this less than successful EAS operation. Where the Committee was successful in pin pointing probable causes for revealed problems, the task became developing a procedure to attempt a remedy for those situations.

4. After all was said and done, it became apparent that many of the problems of the new EAS were attributable to insufficient detail in Part 11 of the FCC Rules and the varying interpretations of those rules resulting from that lack of detail.

5. Aside from obvious operational problems that need correcting, the SBE urges the FCC to acknowledge that the highest percentage of actual use of the EAS will be at the local operational area level. As written, Part 11 is not binding on local government. Lest EAS suffer from the same problems that often prevented EBS from working properly or even being properly understood, the SBE urges the FCC to consider the addition of language to the Rules that would encourage participation of local emergency government agencies in the development and use of the EAS at the local level.

6. It became the decision of the SBE EAS Committee to file this petition for rules change in an attempt to gain a more consistent operation of the EAS across the United States and its Territories. What follows are individual items of concern about the operation of the EAS and suggested rules changes to remedy each situation. Deletions are indicated by strikethrough text, additions are indicated by bold-italicized-underlined font. Italicized non-bold font indicates text additions presented earlier in the petition.

* See, for example, "SFX Removes EAS Units From Chain," July 9, 1997, *Radio World*, Page 1.

II. Proposed Changes to Part 11 of the FCC Rules

ITEM 1: Extending the relay window for tests and changing to quarterly mandated testing.

The SBE recognizes that testing of a system is vital to its readiness, but in the end, a test is just a test and not a vehicle of actual disaster information. As such, when the required time in which to relay a test causes undue hardship or expense to a broadcaster or obtrusive interruption of programming to an audience, acceptance of the system and willingness to use it in actual emergency situations diminishes. Broadcasters, given more time to relay a mandated test, will likely be able to insert it into a less disruptive portion of programming or may even be able to replace promotional or public service time already scheduled in a break structure. Enlarging the test relay window should be promoted as an exchange for broadcasters' promise to air local alerts on an as-soon-as-possible basis. Additionally, once the "shakedown" year of EAS implementation is over, the need for a monthly test lessens. The SBE feels the readiness of the relay system could be verified with a quarterly test. However, in cases where a State Emergency Communications Committee (SECC) or a Local Emergency Communication Committee (LECC) feels that a monthly test is needed in their state, that option could still exist. Therefore, in an effort to keep the annoyance of testing the EAS from detracting from its acceptance, the SBE requests that after January 1, 1998, a quarterly test replace the monthly test and a 60 minute relay window be instituted by the following changes to Part 11 Rules.

(Addition) Paragraph 11.31(e). ***Required Quarterly Test (RQT)***

11.51(k). Broadcast stations and cable systems are required to transmit all received EAS messages in which the header code contains the Event codes for Emergency Action Notification (EAN), Emergency Action Termination (EAT), ~~and~~ Required Monthly Test (RMT), ***and Required Quarterly Test (RQT)*** with the accompanying location codes for their State and State/county. These EAS messages shall be re-transmitted unchanged except for the LLLLLLLL- code which identifies the broadcast station or cable system re-transmitting the message. See §11.31(c) of this part. If an EAS source originates any EAS messages with the above Event codes, it must include the location codes for the State and counties in its service area. When transmitting the required weekly test, broadcast stations and subject cable systems will use the event code RWT. The location code will be the State

and county for the broadcast station city of license or subject cable system community. Other location codes may be included upon approval of station or cable system management approval. EAS code requirements and examples are provided in the EAS Operating Handbook. Operations may be conducted automatically or manually.

Paragraph 11.51(k)(2). Manual interrupt of programming and transmission of EAS messages may be used. EAS messages with the EAN and EAT Event codes must be transmitted immediately and Monthly (RMT) ***or Quarterly (RQT)*** EAS test messages within ~~15~~ ***60*** minutes. All actions must be logged or recorded.

Paragraph 11.51(l). Broadcast stations and cable systems may employ a ~~minimum~~ delay feature, ~~not to exceed 15 minutes,~~ for automatic interrupt of EAS codes but not for the EAN Event which must be transmitted immediately. ***The RMT and RQT can be delayed up to 60 minutes.***

Paragraph 11.52(e)(2). Manual interrupt of programming and transmission of EAS messages may be used. EAS messages with the EAN ***or EAT*** Event code must be transmitted immediately and Monthly ***or Quarterly*** EAS test messages within ~~15~~ ***60*** minutes. All actions must be logged or recorded. Decoders must be programmed for the EAN and EAT Event header codes for EAS National level emergencies and the ***RQT***, RMT and RWT Event header codes for required ***quarterly***, monthly and weekly tests, with the appropriate accompanying ~~State and~~ State/county location codes.

Paragraph 11.61(a)(1)(i). Effective July 1, 1996 ***and until January 1, 1998,*** AM, FM and TV stations.

Paragraph 11.61(a)(1)(ii) Effective July 1, 1997 ***and until January 1, 1998,*** cable systems.

Paragraph 11.61(a)(1)(iii). ***Effective until January 1, 1998, monthly*** tests in odd numbered months shall occur between 8:30 a.m. and local sunset. ***Monthly*** tests in even numbered months shall occur between local sunset and 8:30 a.m. ***After January 1, 1998, quarterly tests in odd numbered quarters shall occur between 8:30 a.m. and local sunset. Quarterly tests in even numbered quarters shall occur between sunset and 8:30 a.m.*** They will originate from Local or State Primary sources. Time and script content will be developed by State Emergency Communications Committees in cooperation with affected broadcast stations, cable systems, and other participants. Script content can be in the primary language of the broadcast station or cable system. These

monthly tests must be transmitted within ~~15~~ ***60*** minutes of receipt by broadcast stations and cable systems in an EAS Local Area or State. Class D non-commercial educational FM and LPTV stations need to transmit only the test script.

ITEM 2: Optional two-tone attention signal.

Acknowledging that the two-tone attention signal is necessary in the EAS message until the old EBS decoders are removed, the SBE feels that the sound of the Audio Frequency-Shift Keying ("AFSK") digital header transmitted without any other audio in a broadcaster's main channel is, in itself, an adequate attention signal. Recognizing those areas where there exists consumer receivers set to de-mute on reception of this two-tone attention signal from a broadcaster, the SBE urges the FCC to suggest that those broadcasters continue to incorporate the two-tone attention signal into their emergency broadcasts until such time those receivers are replaced or are no longer necessary. Removal of the two-tone attention signal mandate from the rules will, however, allow broadcasters without those receivers in their coverage area the opportunity to remove that signal from their tests and/or actual alert transmissions. The result will be a shorter and more palatable message format. To that end, the SBE requests the following changes to Part 11 EAS Rules.

Paragraph 11.12. Existing two-tone Attention Signal Encoder and Decoder equipment type accepted for use as Emergency Broadcast System equipment under Part 73 may be used by broadcast stations until ~~July 1, 1997~~ ***January 1, 1998***, provided that such equipment meets the requirements of §11.32(a)(9) and §11.33(b). Effective ~~July 1, 1997~~ ***January 1, 1998,*** the two-tone Attention Signal Decoder will no longer be required and the two-tone Attention Signal ~~will~~ ***may*** be used ~~to provide an audio alert~~ ***at the participant's option***.

Paragraph 11.31(c). The EAS protocol, including any codes, must not be amended, extended or abridged without FCC authorization. The EAS protocol and message format are specified in the following representation. Examples are also provided in the EAS Operating Handbook.

[PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLL(one second pause)
[PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLL(one second pause)
[PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLL(one second pause)

(***optional*** transmission of 8 to 25 seconds of Attention Signal)

(transmission of audio, video or text messages)

(at least a one second pause)

[PREAMBLE]NNNN

(one second pause)

[PREAMBLE]NNNN

(one second pause)

[PREAMBLE]NNNN

(at least one second pause)

ITEM 3: Modulation level of EAS audio tones.

Broadcasters have had problems attaining the 80% modulation level required in the old EBS and continue to have those problems with the new EAS. In most cases, to attain the mandated modulation level, the tone insertion equipment must be inserted after station processing. Since, in current EAS equipment design, the same tone insertion equipment also inserts the audio of a monitored station, installing it after processing is a situation that is adverse to acceptable engineering practice. Therefore the SBE urges the FCC to reduce the required modulation level of the EAS tones to a level attainable through processing by making the following changes in Part 11 Rules.

11.51(f). Broadcast stations are responsible for ensuring that the equipment for generating the EAS codes and the Attention Signal shall modulate a broadcast station transmitter so that the signal broadcast to other broadcast stations and cable systems alerts them that the EAS is being activated or tested at the National, State or Local Area level. The minimum level of modulation for EAS codes, measured at peak modulation levels using the internal calibration output specified in _ 11.32(a)(4) of this part, shall modulate the transmitter at no less than ~~80%~~ ***50%*** of full channel modulation limits. ***Until January 1st, 1998, and when optionally used after that date, when*** ~~M~~measured at peak modulation levels, each of the Attention Signal tones shall be calibrated separately to modulate the transmitter at no less than ~~40%~~ ***25%***. These two calibrated modulation levels ***when used*** shall have values that are within 1 dB of each other.

ITEM 4: Specific location codes and use restrictions.

It has been discovered by the SBE EAS Committee that most manufacturers do not require specific location code verification when an EAN/EAT is received. Some EAS devices do this when an RMT is received, as well. While it is true that all broadcasters and cable systems are required to immediately air an EAN/EAT activation and thus specific location code verification my seem irrelevant, the SBE feels that such location code verification does serve multiple purposes. The first is to reduce the chances of accidental activation of the EAS and minimize the areas affected if such activation occurs. The SBE feels that had such verification been in place in April of 1997, the unfortunate false EAN activation of stations in Ohio, Florida, and Louisiana by the Federal Emergency Management Agency (FEMA) while attempting a test of a Chicago PEP station's equipment would have been prevented. In this case, had the EAN been encoded with Cook County, IL, and the decoders designed to filter an EAN based on specific accompanying location codes, the only station to react would have been the Chicago station. As such there would not have been an incident as that station's EAS decoder had been manually bypassed in the audio chain via a patch for this "test" activation. In the absence of a national EAS testing procedure which includes the entire nation, such PEP testing by using an EAN in the bypass mode may be the only way to prove that a PEP station's equipment is properly functioning all the way down to the program interrupt relays. With current equipment decoder filtering designs, however, these "bypass" activations are not possible.

Another purpose of location code verification on <u>all</u> test and activations is to allow the selective alerting of a portion of the country in the case of verified pending terrorist activity. While it is true that the EAN was developed to deal with an imminent nuclear attack, the evolution of world societies has lessened the likelihood of nuclear warfare but has increased the likelihood of terrorist activity. Such an event would fall under the jurisdiction of a national government agency but not threaten the entire country and so the need exists to alert selective locations from a national activation point. Under current EAS equipment design, such alerting is not possible.

And so in order to reduce the chances of accidental activation of the EAS while minimizing the areas affected if such activation occurs, and to provide the ability to selectively alert portions of the country from a national origination point, the SBE urges the FCC to require location code verification for all tests and alerts, including the EAN/EAT. Additionally, in

order that multiple alerts are not necessary to activate the entire country when needed, the SBE proposes the addition of a single "entire country" location be used in the event of an actual EAN/EAT activation of such scope.. Further, in order to predict operation of the system and thereby promote confidence in it, the SBE urges the FCC to restrict and specify the use of "wide-area" location codes which include an "entire state" or an "entire country" code. The following changes in Part 11 Rules will accomplish these objectives.

Paragraph 11.31(c). PSSCCC- This is the Location code and indicates the geographic area affected by the EAS alert. There may be 31 Location codes in an EAS alert. The Location code uses the Federal Information Processing System (FIPS) numbers as described by the U.S. Department of Commerce in National Institute of Standards and Technology publication 772. Each state is assigned an SS number as specified in paragraph (f) of this section. ***Additionally, a SS number of 00 refers to the entire country and its territories.*** Each county is assigned a CCC number. A CCC number of 000 refers to an entire State or Territory. ***Decoder programming shall never use the SS code of 00 nor the county code of 000 but rather only the SSCCC code(s) of the decoding participant's designated area of EAS responsibility. The area of EAS responsibility is defined by a cable system's community of license, by a broadcaster's signal coverage, or in the case of an EAS key station, large areas only partially covered by the station's transmission (i.e.: an NP station responsible for an entire state even though the station's signal covers only a portion of that state within which that state's SP designate is located) The SS code of 00 shall be used only in the origination of an actual EAN/EAT by sources designated as NP or PEP, or in successive relays of that origination. The CCC code of 000 shall be used only in origination and only by sources designated as NP or SP or in successive relays of that origination.*** P defines county subdivisions as follows: 0 = all or an unspecified portion of a county, 1 = Northwest, 2 = North Central, 3 = Northeast, 4 = West Central, 5 = Central, 6 = East Central, 7 = Southwest, 8 = South Central, 9 = Southeast. Other numbers may be designated later for special applications. The use of county subdivisions will probably be rare and generally for oddly shaped or unusually large counties. Any subdivisions must be defined and agreed to by the local officials prior to use.

11.51(k). Broadcast stations and cable systems are required to transmit all received EAS messages in which the header code contains the Event codes for Emergency Action

Notification (EAN), Emergency Action Termination (EAT), ~~and~~ Required Monthly Test (RMT), and Required Quarterly Test (RQT) with the accompanying location codes for their ***entire*** State ~~and~~ ***or*** ~~State/~~ ***any*** county ***in their EAS area of responsibility, or the entire Country and its Territories. An EAS decoder programmed with a county or many county codes shall recognize that a message received with one of these event codes and an accompanying location code of any of the counties or of the entire State or Territory within which any of the counties are located, or of the entire Country and its Territories, is a valid message.*** These EAS messages shall be re-transmitted unchanged except for the LLLLLLLL- code which identifies the broadcast station or cable system re-transmitting the message. See §11.31(c) of this part. If an EAS source originates any EAS messages with the above Event codes, it must include the location codes for the ~~State and~~ ***county or*** counties in its service area. ***Optionally, an EAS source designated as NP may use the "entire Country and its Territories' code if appropriate to the message. Also, an EAS source designated as a NP or SP may include "entire State or Territory" location codes for its area of EAS responsibility if the origination is intended for reception by participants outside of its local coverage area but within an entire State or Territory when relayed by an EAS web. No EAS designations less than NP or SP may use the "entire Country and its Territories' code or an "entire State or Territory" code in any EAS send or receive programming.*** When transmitting the required weekly test, broadcast stations and subject cable systems will use the event code RWT. The location code will be the ~~State and~~ county for the broadcast station city of license or subject cable system community. ***Participants designated NP, SP, SR., and LP shall include the location codes for their areas of EAS responsibility when transmitting a RWT.*** Other location codes may be included upon approval of station or cable system management ~~approval~~. EAS code requirements and examples are provided in the EAS Operating Handbook. Operations may be conducted automatically or manually.

Paragraph 11.51(k)(2). Manual interrupt of programming and transmission of EAS messages may be used. EAS messages with the EAN and EAT Event codes ***accompanied by the location codes of any portion of the receiving participant's area of EAS responsibility*** must be transmitted immediately and Monthly (RMT) or Quarterly (RQT) EAS test messages ***accompanied by the location codes of any portion of the***

receiving participant's area of EAS responsibility must be transmitted within ~~15~~ *60* minutes. All actions must be logged or recorded.

Paragraph 11.52(e). A broadcast station or cable system is required to interrupt normal programming either automatically or manually when it receives an EAS message in which the header code contains the Event codes for Emergency Action Notification (EAN), Emergency Action Termination (EAT), ~~or~~ Required Monthly Test (RMT), *or Required Quarterly Test (RQT)* for *any* ~~State or State/~~county location *within its area of EAS responsibility*. *The decoder shall recognize that a received message containing any of these event codes and the "entire State or Territory" location code within which any part of the receiving participant's area of EAS responsibility is located, or the "entire Country and its Territories" code is a valid message.*

Paragraph 11.52(e)(2). Manual interrupt of programming and transmission of EAS messages may be used. EAS messages with the EAN Event code must be transmitted immediately and Monthly *or Quarterly* EAS test messages within ~~15~~ *60* minutes. All actions must be logged or recorded. Decoders must be programmed for the EAN and EAT Event header codes for EAS National level emergencies and the RQT, RMT and RWT Event header codes for required quarterly, monthly and weekly tests, with the appropriate accompanying ~~State and State/~~county location codes *for the decoding participant's area of EAS responsibility. The decoder shall recognize that a received message containing any of these event codes and the entire State or Territory" location code within which any part of the receiving participant's area of EAS responsibility is located, or the entire Country and its Territories" code is a valid message.*

ITEM 5: Adding a Protocol for Text Transmission.

Where the EAS is well designed to originate, relay, and transmit voice emergency messages, it is not so well designed to do the same with emergency electronic text information. In the few short months of EAS on-line operation it has become obvious that this lack of detailed text transmission capability is causing the system appreciable criticism. There appears to be three contingents that are very concerned about this issue; the hearing impaired community, the emergency management community, and those broadcasters wishing to include detailed disaster information updates in the next programming break or newscast rather than immediately upon reception. Four parts of the EAS header now make up the only text

generated by the EAS decoder. This text consists of pre-programmed phrases, stored in the E-proms of the decoder, correlated to each digital EAS code. These phrases simply are not detailed enough for the desired uses of EAS text. One example where this problem is paramount is an evacuation due to a flood or chemical release. There simply is no way to specifically describe the boundaries of a two-block area with the existing text capability of the EAS. This text limitation is also evident in the case of an Emergency Manager needing to constantly update the public through the media after the initial impact of the disaster. Information on the expanding and contracting areas affected by a dynamic disaster along with constantly changing information on housing, medical facilities, and other disaster relief availability cannot be textually transmitted under the current EAS protocol. The SBE believes that the EAS would have ultimate capabilities of disaster warning as well as disaster follow up management if the proper means of text transmissions were included in the protocol. To that end, the SBE has been sampling the EAS industry to affect a viable method of accomplishing this goal. The debate came down to two different methods; 1) text inclusion within the existing EAS message or 2) text immediately following the existing EAS message format but pertaining to the event of that message. The SBE feels that the second method, that of text following the existing EAS message, is the best solution. By doing it this way, text can be incorporated without affecting existing decoders that may take a while to be changed. Nor will this method have an adverse affect on consumer receivers, SAME or EAS capable, that will likely not have text capability included. Additionally, simple error detection of the text transmission can be incorporated without affecting the voice message format in those receivers that will not be text ready. The following additions to Part 11 are suggested to accomplish this.

(Addition) ***Paragraph 11.32(a)(2)(i). The encoder shall accept standard protocol ASCII text fragments as described in 11.31(c) on a designated RS-232C input and shall, prior to transmission, convert this protocol to the EAS Audio Frequency Shift Keying protocol described in 11.31(a)(1).***

(Addition) ***Paragraph 11.33(a)(7)(i). The decoder shall convert ASCII text fragments as described in paragraph 11.31(c) from the EAS Audio Frequency Shift Keying protocol to a standard protocol and output that text to one or more designated RS232 ports.***

Paragraph 11.31(c). The EAS protocol, including any codes, must not be amended, extended or abridged without FCC authorization. The EAS protocol and message format are specified in the following representation. Examples are also provided in the EAS Operating Handbook.

[PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLL(one second pause)
[PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLL(one second pause)
[PREAMBLE]ZCZC-ORG-EEE-PSSCCC+TTTT-JJJHHMM-LLLLLLLL(one second pause)
(optional transmission of 8 to 25 seconds of Attention Signal)
(transmission of audio, video or text messages)
(at least a one second pause)
[PREAMBLE]NNNN
(one second pause)
[PREAMBLE]NNNN
(one second pause)
[PREAMBLE]NNNN
(at least one second pause)
(text fragment #1)
[preamble]TEXX<len><ilen><sequence><text characters>16bitCRC
(repeat text fragment #1)
[preamble]TEXX<len><ilen><sequence><text characters>16bitCRC
(optional text fragment #n)
[preamble]TEXX<len><ilen><sequence><text characters>16bitCRC
(repeat optional text fragment #n)
[preamble]TEXX<len><ilen><sequence><text characters>16bitCRC
Explanation: After the normal EAS message concludes with the NNNN EOM, if there is text associated with the event, a separate header will follow immediately (after one second pause). Each text fragment consists of the following header format:
[preamble]TEXX<len><ilen><sequence><text characters>16bitCRC
Existing EAS protocols are 7-bit ASCII in an 8-bit byte, allowing manufacturers to use the high order bit as a simple error detection method. We preserve this scheme by sending numbers in "ASCII hex" format, meaning a 16 bit number with a value of hex 349F is sent as the ascii characters "349F", or 0x33 0x34 0x39 0x46. Values are sent most significant digit first, hex digits 0xA through 0xF are sent in upper case.
TEXX = ascii characters to tell the decoder that text is next and are not ZCZC so there is no confusion with the EAS voice message header.

len = length of frame including everything except the preamble, three character field. Valid lengths are 15 to 300, sent as three ASCII "hex" characters "00F" to "12C".

ilen = inverted length of message, three character field. Formed by taking the bit inversion of length. For example, a length of 113, in hex is 0x71, in 16 bit binary is 0000000001110001; inverted is 1111111110001110, in hex is 0xFF8E, is sent in the ilen field as "F8E".

Together, ilen and len are used to determine the length of the message. If len is not equal to the inverted ilen, then the message is damaged and further characters are ignored.

sequence = order of the message fragment, one character field. To set a reasonable limit on message lengths, no more than five message fragments may be sent in any message. Message fragments are numbered 0 to 4. The internal representation of the message fragment number is a 4 bit value. Set the high order bit to indicate the last fragment in a message. For example, if a message contains three fragments, the sequence numbers are sent as "0", "1", and "A".

text characters - 7 bit ascii in 8-bit byte with high order bit=0.

*CRC - CRC-16 code, 4 character field. The CRC is the CRC-16 definition, based on a generator polynomial of x**16 + x**12 + x**5 + 1, and can be calculated as follows. All variables are unsigned 16 bit items except data which is the unsigned 8-bit input character, initialize CRC to 0. Perform the operation on all input characters except the preamble. Example using the "C" language:*

```
t = (crc>>8) ^ data;
t1 = t & 0xf0;
u = (t>>4) ^ (t&0x0f);
crc = ((crc<<8)^t1) ^ (u << 12) ^ (((t1 ^ u)<<5) ^ u);
```

Once calculated, the 16 bit result is sent as "ascii hex" in four characters, a crc of 0x9F34 would be sent as "9F34".

The packet length can be up to 300 characters long per message, so the number of characters per message fragment is somewhat less. The sequence number allows multiple message fragments per message. Each message is repeated twice so that if the CRC didn't match the first set of characters, the system gets a second chance to receive them.

The text message is sent in the normal AFSK format of the EAS. Its event and location codes come from the EAS message immediately preceding it. By sending the text after the EOM, EAS receivers that are not "text aware" will not record the text packet as audio.
The 300 character limit per message fragment allows the text to be stored in the memory area where normal EAS headers are stored for comparison. It also keeps the transmission of a message with text to a reasonable length.
This will also provide for sending text-only messages if the attention signal and voice are omitted from the EAS message but the "text header" follows the EOM.

ITEM 6: Co-owned, co-located "key" stations.

Experience has shown that the use of a common EAS encoder/decoder for multiple stations that are co-owned and co-located is only viable if no more than one "key" EAS station is among the co-located stations. A key station can be described as one that is being monitored by other stations in an EAS area. The best example of this is an AM station and FM station co-owned and co-located and both designated as LP in their State Plan and thus, both being monitored by EAS participants in the Operational Area. Because the current EAS equipment does not provide for the relay of a message originated by itself, co-located "key" stations that choose not to simulcast originations have to originate tests and alerts separately. This situation causes two separate messages for the same event to be circulating through the relay web the JJJHHMM code in the header will differ between them. In this case, automated, unattended, or manned stations set to automatic will air both messages. When this happens, confusion results and the confidence level in the EAS by the management and audiences of these automatic stations quickly diminishes. Therefore, the SBE suggests procedural definitions for key stations that are part of a group of stations using common EAS equipment. The following Part 11 Rules changes are requested.

Paragraph 11.51(j). Broadcast stations or cable systems that are co-owned and co-located with a combined studio or control facility, (such as an AM and FM licensed to the same entity and at the same location or a cable headend serving more than one system) may provide the EAS transmitting requirements contained in this section for the combined station or cable system with one EAS Encoder. The requirements of §11.32 must be met for both the broadcast station and cable system. *In the case that more than one of the co-owned and co-located stations have been designated as key stations (LP-n, SP, SR*

or NP) with other EAS stations assigned to monitor them in a State Plan, the equipment must be configured such that the remaining key station(s) must either simulcast or relay the origination of one of the key stations.

ITEM 7: TV station airing of crawl-only EAS messages.

In local EAS activations, one of the most challenging decisions broadcasters face is weighing the severity of an EAS event against the effect of interrupting their entire audience. Indeed, in the example of a narrow coverage slowly moving severe weather event, there may be many National Weather Service (NWS) SAME alerts issued as this system encroaches each county in its path. Faced with interrupting the entire audience on each SAME alert issued for this system, many broadcasters may decide not to for some. Where radio broadcasters have no other option than audio program interruption in this situation, television broadcasters do. If the option exists for TV broadcasters to broadcast video-only EAS alerts for local events, there will be a greater chance that all the SAME alerts described above will be broadcast as video, even when the decision is made not to interrupt audio programming. Therefore, the SBE proposes the following changes to Part 11 Rules.

Paragraph 11.51(b). Broadcast stations may transmit only the EAS header codes and the EOM code without the Attention Signal and emergency message for State and local emergencies. *Except for the event codes EAN, EAT, RMT, RWT and RQT, and only for events concerning less than an entire State or Territory, Television stations designated as PN and not designated as a monitoring source to any EAS participants according to their State Plan, may broadcast the video information described in 11.51(c)(1) without the EAS header codes, Attention Signal, emergency message or EOM codes. Additionally, Television stations may broadcast the ASCII text information described in 11.31(c) as a visual crawl without interruption of normal program audio. Television stations and cable systems should ensure that pauses in video programming before* EAS message transmission do not cause television receivers to mute EAS audio messages.

Paragraph 11.55(c)(4). Broadcast stations and cable systems participating in the State or Local Area EAS must discontinue normal programming and follow the procedures in the State and Local Area Plans. Television stations must comply with §11.54(b)(7) *except that if the Television station is designated PN with no other stations monitoring it according to a State Plan and the EAS alert concerns local areas less than an*

entire State or Territory, the Television station may, at their option, broadcast the alert as a crawl only without interruption of the stations audio program. Broadcast stations providing foreign language programming shall comply with §11.54(b)(8) of this part.

Paragraph 73.1250(h). * * * However, when an emergency operation is being conducted under a national, State or Local Area Emergency Alert System (EAS) plan, emergency information shall be transmitted both aurally and visually unless only the EAS codes are transmitted as specified in §11.51 of this chapter. ***For a Television station designated as PN and with no other stations monitoring it and if the EAS alert concerns local areas less than an entire State or Territory, the station may, at their option, broadcast the alert as only a crawl without interruption of the stations audio program.***

ITEM 8: Carrying the President's audio from a non-EAS source.

Because most stations are equipped with high audio quality network connections, and because the quality of audio received on an EAS decoder through certain EAS links will likely be of questionable quality during some day-parts, the SBE requests that, in the case of an EAN, broadcasters be allowed the option to air the actual President's voice message from a source other than the EAS source the alert was received. Further, if a TV station chooses to air the video of the President from the station's network feed but continues to be required to air the audio portion of the President's message from the EAS source which provided the activation, there is a high probability of severe audio to video synchronization problems. To affect this change, the SBE requests the following changes to Part 11 Rules.

Paragraph 11.44(c). Key EAS sources (NP, LP, SP and SR) and Participating National (PN) sources that remain on the air during a National emergency must carry Presidential Messages "live" at the time of transmission or immediately upon receipt. ***EAS participants operating in or switching to manual mode may carry the Presidential Messages via a network or other feed deemed technically "cleaner" than that received from an EAS monitoring source. All participants must, however, relay the EAT when it is received.*** Activation of the National level EAS must preempt State and Local Area EAS operation.

ITEM 9: Restoration of the EAN Network

The SBE was very apprehensive when word was received that the EAN Network arrangement in Part 11 Rules was being dissolved by FEMA. Now that the EAS is on line and state SECC chairs have had to re-design their emergency relay web from the top down, it has become apparent that the PEP station network has many coverage and quality deficiencies. There are states where no PEP station can be monitored in certain areas or during certain day-parts and other states where no PEP station can be monitored at all. It is because of this situation that the SBE urges the FCC to form an appropriate effort or officially support existing efforts toward the goal of restoration of the EAN Network.

ITEM 10: Additional event codes.

The SBE has been patiently awaiting the pending release of additional, non-weather and other event codes to Part 11. As this process continues between the FCC, FEMA, and the National Oceanic and Atmospheric Administration (NOAA) Weather Radio, the SBE has received concerns from its members that there are no cancellation codes in the current tables. Now that the EAS has been used in areas affected by weather situations, it has become apparent that when the need arises to cancel a warning prior to its issued expiration time, there is no code appropriate to the task. In some cases the warning code was re-issued to announce the cancellation of the warning but the EAS generated crawl made it appear the warning was re-issued. In order to deal with cancellations before the event time expires, the SBE urges the FCC to include a "cancellation" code for each event code in the current tables and for each event code that will be added. The SBE stands ready to assist in any way the official process of defining these codes.

ITEM 11: Local Emergency Communications Committee (LECC) concerns.

The SBE feels that the majority of use of the EAS will be at the local level and that it is not prudent for the FCC to treat that level of EAS so lightly. While still maintaining voluntary participation by broadcasters and cable operators at the local level, the SBE feels that the FCC can coax participation at the vital local level through careful additions to Part 11 Rules and through incentives in the licensing area. The SBE urges the FCC to incorporate the following objectives into its EAS governing:

A. Encourage voluntary participation in local EAS activations by asking stations to voluntarily include documentation of local EAS transmissions in the license renewal process.

B. Encourage participation in local EAS by asking stations to voluntarily include documentation of station EAS-related activities in the station's Public Inspection File. Such activities might include station personnel involvement in the local EAS organization effort and any station agreements to carry local alerts from local agencies and the NWS.

C. Include language in Part 11 that requires local emergency management signatures in the approval process of a Local EAS Plan and the attachment of an emergency management SOP outlining the use of EAS as an appendix to the Plan.

D Expand the membership of the National Advisory Committee to include representation from the local emergency management community.

E. Add the EVI (Evacuate Immediately) event code to those that require immediate re-transmission. At present, this is the only local non-weather code for use by local emergency agencies that indicates a life threatening situation.

F. Encourage consumer receiver manufacturers to incorporate scanning EAS decoding chips in their designs. Consider making it a requirement by a specified date, similar to the process used in mandating closed captioning capabilities in television receivers.

G. Designate a single digital audio channel on a satellite with a national footprint to be used for EAS alerting along with an adequate backup on a different satellite. Provide Integrated Services Digital Network ("ISDN") dial-up access to the channel to send alerts. With proper use of location coding and limiting the length of the voice message allowed on this link, the lack of adequate terrestrial EAS resources for local alerting purposes will be eliminated. Being digital, this approach will also minimize the size and cost of the receiving antenna.

III. Results of Proposed Rule Changes

7. The SBE believes that if the EAS Rules are amended as proposed in this Petition, a more consistent and predictable operation of the system will be realized by its participants. This consistent and predictable operation will inspire more confidence by its participants which will result in a wider use of the EAS, especially in local emergencies.

Summary

8. SBE believes that the proposed changes to Part 11 and Part 73 of the FCC Rules would be in the public interest and consistent with the public service objectives of the broadcast industry. SBE urges that the Commission promptly act on this Rule Making Petition by issuing a Notice of Proposed Rule Making at the earliest opportunity.

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